RS-8410-ZB
IN-0254-14

3

STATE BOARD OF HEALTH

INDIANAPOLIS

OFFICE MEMORANDUM

DATE: August 24, 1977

THRU: 8/26/77

TO: File - LaPorte City Dump
McClung Road, LaPorte County

FROM: Tom Difebbo

SUBJECT: Geologic Description and Evaluation

GEOLOGY

SURFICIAL: Soil Types

(1) One soil boring of 10-foot depth is only available information
(2) Soil profile
    (a) 0' to 4': organic, black and dark brown Sandy Silt
    (b) 4' to 8': light brown, Sandy Silt with clay
    (c) 8' to 10': dark brown, medium grain Silty Sand with clay and gravel

SUBSURFACE: BEDROCK

Ellsworth Shale
(a) Green shale overlying black shale
(b) Upper Devonian Age
(c) Thickness = 120'

SUBSURFACE: UNCONSOLIDATED

(1) History: Wisconsin glacial outwash-plain deposits of the Atherton Formation; usually consists of interbedded gravel, sand, and silt.
(2) Unit 2 soil horizon
    (a) Sandy Silt with clay and gravel, containing discontinuous sand and gravel lenses.
    (b) Thin surface layer overlying Unit 3 to the north and northeast of Pine Lake.
(3) Unit 3 soil horizon
    (a) Medium to coarse sand with silt, clay, and gravel, containing thick localized deposits of clay and silt
    (b) Exposed at ground surface, in limited areas between Pine Lake and Fishtrap Lake, as approximately 8 feet of sandy, silty clay overlying coarse sand

GROUNDWATER

WATER TABLE

(1) Configuration: insufficient information
(2) Hydraulic Gradient
    (a) Localized movement of groundwater within upper 8 feet of soil horizon is toward Fishtrap Lake, north from the dump site (note Exhibit 1)
    (b) Potentiometric surface of Unit 3, a semi-confined aquifer, indicates groundwater flow from the dump site toward a central

area between Pine Lake and Fishtrap Lake (note Exhibit 1), and then toward the northwest and southeast, according to the regional hydraulic gradient

(c) Potentiometric surface of Unit 3 in the vicinity of dump site has an elevation of 790'.

(d) Unit 3 is the primary aquifer for LaPorte County, and is recharged in the area of the City of LaPorte –

(3) Depth: upper surface of Unit 3 is within 20' of ground level

QUALITY

(1) Sample analysis for local wells, 1957 to 1959: Note Exhibit 2

(2) No monitoring wells installed on dump site

EVALUATION AND RECOMMENDATION

SITE SUITABILITY

(1) Unconsolidated subsurface

(a) Regional well and test borings indicate the lack of an extensive layer of impermeable clay in the area of the dump site

(b) Medium to coarse sand and gravel aquifer of Unit 3 is susceptible to leachate contamination

Groundwater Quality

(a) Shallow depth and recharge conditions of Unit 3 in this area are likely to increase the extent of leachate contamination

(b) No recent water quality data is available

GROUNDWATER MONITORING

(1) Placement of monitoring wells

(a) One pair of wells, placed 15' apart, should be installed on the perimeter of the site, as close as possible to Fishtrap Lake, to depths of 20' and 40'

(b) One pair of wells should be installed, as above, as far south as possible

(c) One pair of wells should be installed, as above, as far north as possible

(d) One pair of wells should be installed, as above, as close to Pine Lake as possible

(2) Pine Lake and Fishtrap Lake should also be monitored at depth

(3) All sampling intervals should be four months, during remaining operation of site, and for at least 10 years after closing of site

Difebbo/sw

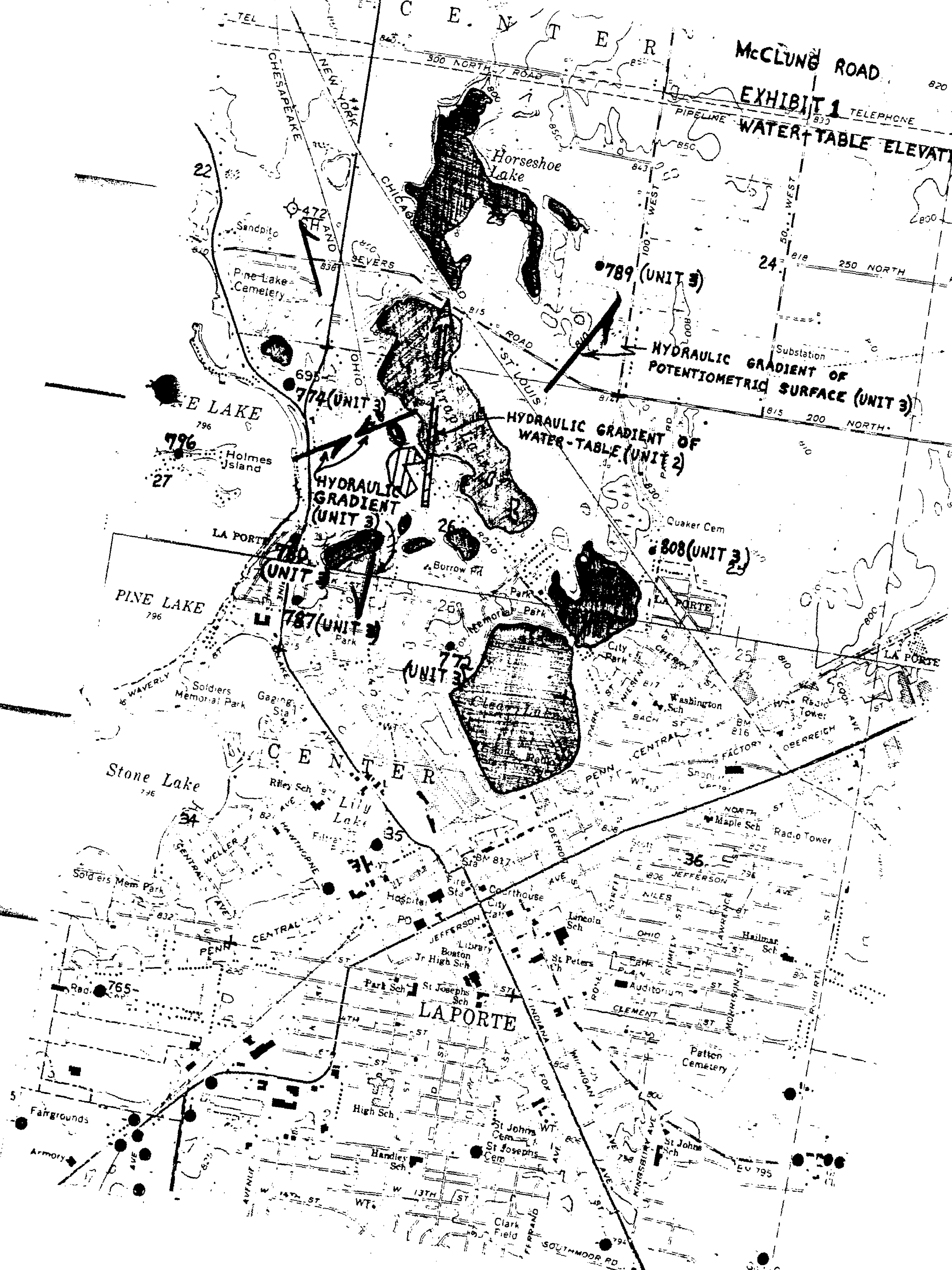
Exhibit 2

Groundwater Monitoring, 1957-59

Parameters (ppm)

Well	Fe	CO_3	HCO_3	SO_4	Cl	$CaCO_3$
37/3W-22Q1	-	5.	107.	-	20.	124.
37/3W-24P1	0.1	14.	215.	110.	20.	292.
37/3W-26J2	0.3	24.	200.	75.	20.	260.
37/3W-27G2	0.3	24.	156.	10.	4.	136.
37/3W-27M2	-	0.	190.	_	8.	164.

Note: Preliminary Report of Ground-Water Resources of LaPorte County for well locations


McCLUNG ROAD
EXHIBIT 1
WATER-TABLE ELEVAT
CENTER
300 NORTH ROAD
PIPELINE
TELEPHONE
Horseshoe Lake
CHESAPEAKE AND OHIO
NEW YORK CHICAGO AND ST LOUIS
SEVERS ROAD
Sandpits
Pine Lake Cemetery
472
789 (UNIT 3)
HYDRAULIC GRADIENT OF POTENTIOMETRIC SURFACE (UNIT 3)
250 NORTH
200 NORTH
Substation
695
774 (UNIT 3)
HYDRAULIC GRADIENT OF WATER-TABLE (UNIT 2)
HYDRAULIC GRADIENT (UNIT 3)
796
Holmes Island
PINE LAKE
LA PORTE
780 (UNIT 3)
787 (UNIT 3)
808 (UNIT 3)
Quaker Cem
Borrow Pit
Fox Memorial Park
City Park
772 (UNIT 3)
Clear Lake
Soldiers Memorial Park
Gaging Sta
Washington Sch
Radio Tower
Stone Lake
Riley Sch
Lily Lake
Maple Sch
Radio Tower
Soldiers Mem Park
Hospital
Fire Sta
Courthouse
City Hall
Lincoln Sch
Library
Boston Jr High Sch
St Peters Ch
Park Sch
St Josephs Sch
Auditorium
Hailman Sch
LAPORTE
765
Patten Cemetery
Fairgrounds
Armory
High Sch
St Johns Cem
St Josephs Cem
Handley Sch
St Johns Sch
Clark Field
SOUTHMOOR RD

P.O. Box 521
Notre Dame, Ind. 46556
Telephone: 233-6820

SHILTS, GRAVES AND ASSOCIATES, INC.

TEST BORING LOG

Boring No. 1
Sheet 1 of 1
Job No. 75-867

PROJECT LaPorte - Detention Basin Site

City LaPorte County LaPorte State Indiana

Boring Location 25' E of overhead power, R-O-W, 25' N of S fence Datum mean sea level

Date Started 24 November 1975 Date Completed 11-24-75 Surface Elevation 796

Weather cloudy, cold Boring Method power auger

GROUND WATER DEPTH

Sampler: Type _____ Casing: Size _____ At Completion Hole caved 7.4 Ft.

Size _____ Length Used _____ With Casing Removed _____ Ft.

Casing Hammer: Wt. _____ Drop _____ After _____ Hours _____ Ft.

Sampler Hammer: Wt. _____ Drop _____

Soil Layer Limits From	Soil Layer Limits To	Soil Description	Sample Data No.	Sample Data From	Sample Data To	Sample Data N	Remarks
0.0	1.5	TOPSOIL - Black silty topsoil.					
1.5	3.5	ORGANIC SILT - Dark brown sandy organic silt.					Moist.
3.5	8.0	CLAYEY SILT - Light brown sandy clayey silt, trace gravel.					Very moist.
8.0	10.0	SILTY SAND - Dark brown silty clayey medium grained sand, trace gravel.					Wet.
							End of boring: 10.0 feet

NOTES:

N Indicates the number of blows required to advance a 2" OD split barrel sampler at 6" intervals by means of a 140 lb. weight falling 30"